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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,284	11/30/2001	Charlotte Horsmans Poulsen	674523-2012	5487
20999	7590	06/17/2005	EXAMINER	
FROMMER LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151			NASHED, NASHAAT T	
			ART UNIT	PAPER NUMBER
			1652	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,284

Applicant(s)

POULSEN ET AL.

Examiner

Nashaat T. Nashed, Ph. D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7, 9-15 and 30-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9-15 and 30-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 1, 2005 has been entered.

The application has been amended as requested in the communication filed June 1, 2005. Accordingly, new claim 37 has been entered.

Claims 1-4, 6, 7, 9-15, and 30-37 are under consideration.

The disclosure is objected to because of the following informalities: At pages 6 and 31, last line, and line 27, respectively, and claims 3, 32, and 37; the name of the genus is "*cripus*", whereas, at page 8, line 9, and page 21, line 13 it is written "*crispus*". The prior art of record indicates that it should be "*crispus*", see Hansen *et al.*

Appropriate correction is required.

Claims 3, 32 and 37 objected to because of the minor objection to the specification stated above. Appropriate correction is required.

The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to the drawings, each of the lettered items should appear in upper case, without underling or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) Title of the Invention.
- (b) Cross-Reference to Related Applications.
- (c) Statement Regarding Federally Sponsored Research or Development.
- (d) Reference to a "Sequence Listing," a table, or a computer program listing appendix submitted on compact disc (see 37 CFR 1.52(e)(5)).
- (e) Background of the Invention.
 - 1. Field of the Invention.
 - 2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) Brief Summary of the Invention.
- (g) Brief Description of the Several Views of the Drawing(s).
- (h) Detailed Description of the Invention.

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- (i) Claim or Claims (commencing on a separate sheet).
- (j) Abstract of the Disclosure (commencing on a separate sheet).
- (k) Drawings.
- (l) Sequence Listing, if on paper (see 37 CFR 1.821-1.825).

While the exact format of the application is not required as stated above, the various elements should be labeled and present in the specification. The application for example contains Figure 1, but it does not contain a figure description, which is required, see below for further details.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (e) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject

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matter of the claimed invention. This item may also be titled "Technical Field."

- (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation.

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There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (k) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 6, 7, 9-15, 30-32, and 34-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, see prior Office actions, mailed November 25, 2003, April 28, 2004, and November 12, 2004.

The claims are directed to an anti-fouling composition comprising any first enzyme, a substrate for first enzyme, and a second from any marine organism, i. e., any life organism in a body of water wherein the substrate is converted by the action of the first enzyme to a substrate for the second enzyme. The specification, however, only provides a single representative species from the second enzymes from marine organism, i. e., hexose oxidase from *Chondrus crispus*. There is no disclosure of any particular structure to function/activity relationship in the single disclosed species. The specification also fails to describe additional representative species of these enzymes by any identifying structural characteristics or properties other than the activities recited in claim 1, i. e., uses the product produced by the action of the first enzyme on the substrate as a substrate and its source is a marine organism, for which no predictability

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of structure is apparent. Given this lack of additional representative species as encompassed by the claims, Applicants have failed to sufficiently describe the claimed invention, in such full, clear, concise, and exact terms that a skilled artisan would recognize Applicants were in possession of the claimed invention.

In response to the above rejection in the previous final Office action, applicants have filed a request for continued examination (RCE), and the same rejected claims in addition to one new claim not rejected above. No new arguments or traversal of the above rejection was filed with the RCE.

Claims 1-4, 6, 7, 9-15, 30-32, and 34-36 are rejected under 35 U.S.C. 112, first paragraph, as the disclosure is enabling only for claims limited to an anti-fouling composition comprising *Chondrus crispus* hexose oxidase of SEQ ID NO: 2, and any of its known substrate listed in the specification, see prior Office actions, mailed November 25, 2003, April 28, 2004, and November 12, 2004.

The specification does not enable any person skilled in the art to make and use the invention commensurate in scope with these claims. The claims are broader than the enablement provided by the disclosure with regard to all possible enzymes "obtained or obtainable" from a marine organisms and their substrates the huge number of all possible. In addition, claim 5, expand the embodiment of claim 4 to include insertion, deletion, substitution and combination thereof mutants, homologue and fragments of SEQ ID NO: 2 which have any oxidase activity. Factors to be considered in determining whether undue experimentation is required, are summarized In re Wands [858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)]. The Wands factors are: (a) the quantity of experimentation necessary, (b) the amount of direction or guidance presented, (c) the presence or absence of working example, (d) the nature of the invention, (e) the state of the prior art, (f) the relative skill of those in the art, (g) the predictability or unpredictability of the art, and (h) the breadth of the claim.

The nature and breadth of the claimed invention encompasses any anti-fouling composition comprising any enzyme "obtained or obtainable" from any marine organism and its substrate. In addition, claim 5, expand the embodiment of claim 4 to include insertion, deletion, substitution and combination thereof mutants, homologue and fragments of SEQ ID NO: 2 which have any oxidase activity. The specification provides guidance and examples in the form of an assay to obtain the hexose oxidase of SEQ ID NO: 2 from *Chondrus crispus*, formulating the enzyme and its substrate into an anti-fouling composition, and provide experimental evidence that the composition produces the desired results (see examples 1-9). While protein purification methods and molecular biological techniques as well as genetic manipulation to purify and make any enzyme from any biological source are known in the prior art and the skill of the artisan are well developed, knowledge regarding the desired enzymatic activities, their biological source, and a method of redesigning the polypeptide of SEQ ID NO: 2 by insertion, deletion, substitution and combination thereof of more than one amino acid

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residue is lacking. Thus, searching for an enzymatic activity that has the desired properties to be incorporated into an anti-fouling composition is well outside the realm of routine experimentation and predictability in the art of success is extremely low. Applicants should be reminded that the sugar substrates and their precursor such as starch and cellulose used in the examples are common plant products, and relatively inexpensive to be incorporated into a paint composition and the like. Many other substrates may not have the same availability or cheap enough to be used in a paint composition. The amount of experimentation to identify a suitable enzyme and its substrate or variant, homologue, derivative, or fragment of SEQ ID NO: 2 is enormous. Since routine experimentation in the art does not include screening vast numbers of marine organisms for a desired enzymatic activity, develop a purification method for said enzyme, clone the gene encoding the enzyme, develop a recombinant method to make the enzyme, identify suitable variant or homologue of the polypeptide of SEQ ID NO: 2, and formulate the enzyme and its substrate into an anti-fouling composition with the desired properties where the expectation of obtaining desired composition is unpredictable, the Examiner finds that one skilled in the art would require additional guidance, such as information regarding the enzymatic activity to be used, the biological source, the gene encoding said enzymatic activity, the suitable variant and homologue of SEQ ID NO: 2 and their man-made or natural source, and the substrate for the enzymatic activity and its source. Without such guidance, the experimentation left to those skilled in the art is undue.

In response to the above rejection in the previous final Office action, applicants have filed a request for continued examination (RCE), and the same rejected claims in addition to one new claim not rejected above. No new arguments or traversal of the above rejection was filed with the RCE.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The reference to amino acid sequence of "SEQ ID NO: 1" in the claim renders the claim indefinite and confusing because the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. SEQ ID NO: 1 is a nucleic acid sequence, which encodes the amino acid sequence of SEQ ID NO: 2. For examination purposes only, it is assumed that the applicant is referring to SEQ ID NO: 2 only or a polypeptide encoded by the nucleic acid sequence of SEQ ID NO: 1.

In response to the above rejection in the previous final Office action, applicants have filed a request for continued examination (RCE), and the same rejected claims in

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addition to one new claim not rejected above. No new arguments or traversal of the above rejection was filed with the RCE.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 7, 9-15, and 30-37 are rejected under 35 U.S.C. 103 as being unpatentable over Hamade *et al.* (IDS: reference AF, EP-0866103 A1) in view of Hansen *et al.* [J. Biol. Chem. 272 (17), April 25, 1997, pages 11581-11587] and the known fact in the art that glucose can be obtained by the action of amyloglucosidase on starch see for example U. S. Patent 4,840,900 ('900) for the reasons set forth in the prior Office action, mailed November 25, 2003 and April 28, 2004.

Hamade *et al.* teach a method preventing fouling surfaces submerged in water by in which an anti-fouling agent is produced by an enzyme action on its substrate, and anti-fouling composition comprising an enzyme and its substrate, see abstract. They specifically teach an enzyme substrate combination capable of producing hydrogen peroxide and exemplify the enzyme-substrate combination with glucose oxidase-glucose and hexose oxidase-glucose, see page 5, lines 14-22. In addition, they teach that the substrate of said oxidase can be produced within the composition by a second enzyme action on a precursor substrate such as the action of cellulase, chitosnase, and lysozyme on chitosan to produce glucose, see page 5, lines 50-54. Thus, Hamade *et al.* teach the claimed composition and method except that they did not teach the enzyme from a marine organism or the generation of glucose by the action of amyloglucosidase on starch.

Hansen *et al.* teach the hexose oxidase from *Chondrus crispus* which catalyzes the oxidation of a variety of mono- and disaccharides including glucose, galactose, maltose, cellobiose and lactose to produce the corresponding lactones and hydrogen peroxide, see abstract, the first paragraph following the abstract, and Table III, on page 11586. Also, they teach that the use of functionally related enzyme glucose oxidase in the production of hydrogen peroxide among other uses, and suggested that the hexose oxidase from *C. crispus* would be a superior substitute for glucose oxidase because of its broader substrate specificity. In addition, they teach the cloning and expression of said hexose oxidase, and report the amino acid sequence and nucleic acid encoding said amino acid sequence, see Figure 3 on page 11585. The amino acid sequence reported in Figure 3 is identical to that of SEQ ID NO: 2 of the instant application.

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The '900 patent teaches that amyloglucosidase catalyzes the hydrolysis of starch to glucose.

Hamade *et al.* teach an anti-fouling composition comprising glucose or hexose oxidase as well as a composition comprising an additional enzyme and substrate to generate glucose for hexose or glucose oxidase. Hansen *et al.* provide one of ordinary skill in the art at the time of invention to use the hexose oxidase from *C. crispus* as they teach that hexose oxidase is a superior substitute to glucose oxidase for all of its uses because of its broader substrate specificity. Thus, it would have been obvious at the time of invention to one of ordinary skill in the art to formulate an anti-fouling composition as taught by Hamade *et al.* comprising the hexose oxidase from *C. crispus*, a marine organism, taught by Hansen *et al.* and use said composition to treat surfaces such as outdoor wood work and the hull of marine vessels (claims 1-4, 6, 7, 10-16, and 21-29). Although Hamade *et al.* do not teach specifically the use of amyloglucosidase to act on the precursor substrate to produce the substrate for the hexose oxidase, they teach any enzyme/substrate combinations that lead to the formation of any substrate for the hexose oxidase would be a good combination, see page 3, lines 38-46. Since the action of amyloglucosidase on starch is known in the prior art to produce glucose, see for example the '900 patent, it would have been obvious to one of ordinary skill in the art at the time of invention to use amyloglucosidase to produce glucose from starch in the claimed composition (claim 9, and 30-37). New claim 37 is included in this rejection because it is directed to the same subject matter. Thus, the claimed invention was within the ordinary skill in the art to make and use at the time was made and was as a whole, clearly *prima facie* obvious.

In response to the above rejection in the previous final Office action, applicants have filed a request for continued examination (RCE), and the same rejected claims in addition to one new. No new arguments or traversal of the above rejection was filed with the RCE.

Claims 1-4, 6, 7, 9-15, 30-32, and 34-36 are rejected under 35 U.S.C. 103 as being unpatentable over Hamade *et al.* (IDS: reference AF, EP-0866103 A1) in view of U. S. Patent 6,251,626 B1 [626 patent, Stougaard *et al.*] and the known fact in the art that glucose can be obtained by the action of amyloglucosidase on starch see for example U. S. Patent 4,840,900 (900) for the reasons set forth in the prior Office action, mailed November 25, 2003, and April 28, 2004.

The teachings of Hamade *et al.* and the '900 patent are summarized above.

The '626 patent teaches the purification and cloning of hexose oxidase from *Chondrus crispus* which catalyzes the oxidation of a variety of mono- and disaccharides including glucose, galactose, maltose, cellobiose and lactose to produce the corresponding lactone and hydrogen peroxide, see abstract, the first paragraph following the abstract, and Technical Background, column 1 and 2. Also, they teach

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that the use of functionally related enzyme glucose oxidase in the production of hydrogen peroxide among other uses, and suggested that the hexose oxidase from *C. crispus* would be a superior substitute for glucose oxidase because of its broader substrate specificity, see column 1. In addition, they teach the expression of said hexose oxidase, and report the amino acid sequence and nucleic acid encoding said amino acid sequence, SEQ ID NO's: 31 and 30, respectively. The amino acid sequence of SEQ ID NO: 31 of the 626 patent differs only in one amino acid residue from that of SEQ ID NO: 2 of the instant application.

Hamade et al. teach an anti-fouling composition comprising glucose or hexose oxidase as well as a composition comprising an additional enzyme and substrate to generate glucose for hexose or glucose oxidase. The '626 patent provides one of ordinary skill in the art at the time of invention to use the hexose oxidase from *C. crispus* as they teach that hexose oxidase is a superior substitute to glucose oxidase for all of its uses because of its broader substrate specificity. Thus, it would have been obvious at the time of invention to one of ordinary skill in the art to formulate an anti-fouling composition as taught by Hamade et al. comprising the hexose oxidase from *C. crispus*, a marine organism, taught in the 626 patent and use said composition to treat surfaces such as outdoor wood work and the hull of marine vessels (claims 1-4, 6, 7, 9-15). Although Hamade et al. do not teach specifically the use of amyloglucosidase to act on the precursor substrate to produce the substrate for the hexose oxidase, they teach any enzyme/substrate combinations that lead to the formation of any substrate for the hexose oxidase would be a good combination, see page 3, lines 38-46. Since the action of amyloglucosidase on its substrate is known to produce glucose, see for example the '900 patent, it would have been further obvious to one of ordinary skill in the art at the time of invention to use amyloglucosidase to act on the precursor substrate (claims 9 and 30-32, and 34-36). Thus, the claimed invention was within the ordinary skill in the art to make and use at the time was made and was as a whole, clearly *prima facie* obvious.

In response to the above rejection in the previous final Office action, applicants have filed a request for continued examination (RCE), and the same rejected claims in addition to one new claim. No new arguments or traversal of the above rejection was filed with the RCE.

Interview:

Applicants' attorney requested an interview prior to issuing any office action other than notice of allowance. The examiner, however, does not consider an interview useful or necessary at this time because he does not believe that an interview would advance the prosecution of this application. Applicants' attorney made no attempt to argue, or amend the claims to overcome the rejections of record. The attorney of record is advised to review the "interview" policy of the Office in section 713 of the MEPE, and in particular 713.02 and 713.03.

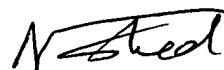
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No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nashaat T. Nashed, Ph. D. whose telephone number is 571-272-0934. The examiner can normally be reached on MTTF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 521-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nashaat T. Nashed, Ph. D.
Primary Examiner
Art Unit 1652